

In the specification:

Please delete the paragraphs mentioned and substitute each respective paragraph with the counterpart attached.

[0008] Heretofore, most traction systems previously employed developed, employ actual weight members and pulley systems to exert the desired tractive force to apply cervical traction. Because these systems employ drop weights, various protection systems have been suggested to protect against or minimize shock force as the weight is raised or lowered. One such system is disclosed in U.S. Patent No. 5,957,876 to D'Amico. Such systems tend to be complicated and generally require external mounting to a wall or door unit. Mounting such weight bearing systems directly to the treatment table is difficult as the effectiveness of the traction device is reduced when weights bearing members are positioned too closely to the treatment table.

[0033] In general as shown in Figures 1, 2, and 3, the traction device is composed of a body contacting assembly 12 to which a suitable tension transfer system 13 including tension line 24 is suitably attached. The tension transfer system 13 is capable of transferring a tractive force from the exerting tractive force delivery device 16 to the assembly 12. When the cyclical or intermittent mode of operation is required, the tractive force transfer system 13 of the traction device 10 also includes means for interrupting or varying the tractive force exerted on assembly 12. This tractive force interruption means includes a tension release line attached to the tension line 14 and line 24 and terminating in a means for engaging an appendage of a patient such as a loop or suitable handle device. Such systems are discussed in US Patent Nos. 5,957,876 and 6,113,563 to Anthony T. D'Amico, which is incorporated herein by reference.

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[0034] The tractive force transferring system 13 can also include a suitable pulley mechanism such as pulley device 22. In the device of the present invention as shown in Figs. 1 and 4, the tension line 14, Figs. 1 and 6, the tension line 24 extends through pulley device 22 and is moveable relative thereto. The pulley device 22 is adapted to be positioned at a suitable location relative to the body contacting assembly 12. Where desired or required, the pulley 22 may be elevated relative to the body contacting assembly to provide proper orientation for the body contacting assembly and administration of suitable tractive force.

[0036] In the cyclical version cycle between traction load on and traction load off may be accomplished by suitable electronically or mechanically facilitated cycling devices. Alternately, a tension release line 25 (as shown in Fig. 5) may be attached to the tension line 24 at any suitable location as between the body contacting assembly 12 and the pulley 22. The tension release line may be configured in any suitable manner and may include means for attaching the tension release line to an appendage such as an arm or leg. Examples of such systems are discussed in the D'Amico patents previously referenced.

[0040] In the first embodiment of the traction device as disclosed, traction force may be imparted by a suitable mechanism for transferring traction force such as a

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tractive force delivery device 16. The tractive force delivery device 16 may engage the tension line 14 at line 24 at any suitable location such as its terminal end 26.

[0050] The gas spring 110 of the force delivery device 100 has suitable means for attaching the distal end of the telescoping rod 120 to an appropriate adjustment member 122. The attachment member 124 may be any suitable pin, clamp, or other locking mechanism, such as a rod with suitable detent, which will permit secure but movable engagement between the attachment means 124 and the elongate member 122 suitable for adjusting the orientation of gas spring 110.

[0053] The second end 130 of the elongate member 122 is positioned distal to the first end 128. The second end 130 may include a suitable bumper cushion member 134 at the terminal end. Also included proximate to the second end 130 is a suitable means for attaching the terminal end of line 24. Line 24 may be secured to the elongate member 122 proximate to the second end 130 by a knot (142) or knot 26 by any other suitable essentially permanent means. As depicted in Fig. 5, attachment is through a suitable through bore 152 with an appropriate knot which can be modified to achieve adjustment in the ultimate length of line 24.

[0072] The second end 230 of adjustment rod 222 also includes suitable means for attaching the terminal end of line 24. Line 24 may be secured to the adjustment rod 222 proximate to the second end 230 by a suitable knot 250, or by any other suitable

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essentially permanent means. As used herein, the term "suitable essentially permanent" is taken to mean an attachment mechanism which will withstand multiple cycles of the traction device. As depicted in Figs. 8 and 9, attachment is through a suitable bore ~~bore~~ with bore with an appropriate knot that can be modified to achieve adjustment of the ultimate length of line 24.

[0075] In order to provide for unimpeded rotation of the member 244 relative to the pivot point proximate to second end 230, the linear actuator 233 can include a suitable torsion spring member 248. As depicted in Fig. 14, tension Fig. 4, torsion spring member 248 includes a pair of spring elements positioned between the respective arms of member 244 and the second end 230 of adjustment rod 220. Spring member 248 is configured to provide biasing movement of the member 244 relative 230.

[0079] The cycle of traction and rest can be repeated for a period prescribed by the patient's physician, physical therapist or other health care giver. The interval can be defined by elapsed time or cycle repetitions as desired and tolerated by the individual patient-user. In order to time the cycles, suitable timing mechanisms and/or programs can ~~e-be~~ utilized as desired or required. The cyclical repetition of alternating rest and traction intervals enables the user to employ and tolerate greater traction force than would be possible if non-cyclical cervical (static) traction were employed. The particulars regarding cyclic mode of operation typically would be chosen by the physician or therapist. The

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greater traction weight is desirable as it accomplishes greater extension of the affected region such as the neck or lumbar region with associated enhanced therapeutic benefits.

[0083] It is also contemplated that the motorized weightless tractive force mechanism can be advantageously employed to provide cyclical, intermittent, or continuous tractive force to various anatomical regions. Depending on the nature of the tractive force to be applied, the device as disclosed herein can be oriented in any manner that will achieve an implement appropriate traction. An alternate embodiment of the device as disclosed herein is depicted which is suitable for delivery of traction to the lumbar region of the spine. As depicted in Fig. 9, the device 300 is mounted such that truss 332 is attached to table 30. The gas spring 310 is movably attached to elongate member 322 to form a triangle therebetween. A suitable motor actuated piston assembly such as linear actuator 333 can be suitably positioned or mounted relevant to table T and can include an outer housing 334 and an elongate member 336 telescopically positioned movable to housing 334. Linear actuator 333 can also include member 344 adapted to the pivotally rotatable relative to second end 330 of adjustment bar 322. The tension line 24 can be connected to the device at a suitable location on elongate member 322 and can be fed through suitable pulleys such as pulley device 312. Tension line 24 can be affixed relative to the elongate member 322 in any suitable manner such as by knot 352. The elongate member 322 can include suitable adjustment means such as bore holes 326. Gas spring 318 can be connected to the elongate member 322 in the manner depicted in Fig. 9.